

CLAIMS

1. A method of transdermally administering a therapeutically effective amount of enalaprilat through the skin of a patient, said method comprising the steps of:

- a) applying to the skin of said patient a dermal composition comprising a therapeutically effective amount of enalapril ethyl ester in admixture with a pharmaceutically acceptable carrier; and
- b) maintaining said dermal composition in contact with said skin for a time sufficient to deliver a therapeutically effective amount of enalaprilat,

said method characterized in that the flux of enalapril ethyl ester is greater than that of enalapril maleate.

2. The method according to claim 1 wherein the flux of enalapril ethyl ester and the flux of enalapril maleate are in a ratio of 100:1 to 3:1.

3. The method according to claim 2 wherein said ratio is 70:1 to 10:1.

4. The method according to claim 1 wherein said carrier comprises a pressure-sensitive adhesive.
5. The method according to claim 4 wherein said pressure-sensitive adhesive is a polymer or a mixture of a plurality of polymers.
6. The method according to claim 1 wherein said carrier is a flexible, finite polymer that comprises a least one of an acrylic-based polymer and a silicon-based polymer.
7. The method according to claim 1 wherein said dermal composition further comprises an enhancer.
8. The method according to claim 7 wherein said enhancer comprises dipropylene glycol and oleyl alcohol.
9. A dermal composition comprising a therapeutically effective amount of enalapril ethyl ester in admixture with a pharmaceutically acceptable carrier.
10. The dermal composition according to claim 9 wherein said carrier comprises a pressure-sensitive adhesive.

11. The dermal composition according to claim 10 wherein said pressure-sensitive adhesive is a polymer or mixture of a plurality of polymers.
12. The dermal composition according to claim 9 wherein said carrier is a flexible, finite polymer that comprises at least one of an acrylic-based polymer and a silicon-based polymer.
13. The dermal composition according to claim 9 wherein said composition further comprises an enhancer.
14. The dermal composition according to claim 13 wherein enhancer comprises dipropylene glycol and oleyl alcohol.
15. A method of making the dermal composition of claim 9, comprising forming a mixture of enalapril ethyl ester and a pharmaceutically acceptable carrier.
16. A method of treating a human being or animal suffering from a condition for which an ACE (angiotensin-converting enzyme) inhibitor is indicated, said method comprising the steps of:

applying to the skin of a human being or animal, the dermal composition of claim 9; and

maintaining said dermal composition in contact with said skin for a time sufficient to administer a therapeutically effective amount of enalaprilat.

17. The method of claim 16 wherein said condition is one selected from the group consisting of hypertension, heart failure, myocardial infarction, and nephropathy.

18. A method of transdermally administering a therapeutically effective amount of an ACE inhibitor through the skin of a patient, said method comprising the steps of:

- a) applying to the skin of said patient a dermal composition comprising a lipophilic prodrug in an amount corresponding to a therapeutically effective amount of a pharmaceutically active form of an ACE inhibitor in admixture with a pharmaceutically acceptable carrier; and
- b) maintaining said dermal composition in contact with said skin for a time sufficient to deliver a therapeutically effective amount of the drug,

wherein said method is characterized in that the flux of said lipophilic prodrug is greater than that of the pharmaceutically active form of the

ACE inhibitor, and wherein the ACE inhibitor is one selected from the group consisting of benazepril, lisinopril, perindopril, quinapril, ramipril, spirapril, temocapril, and trandolapril.

19. The method according to claim 18 wherein the flux of the lipophilic prodrug and the flux of the pharmaceutically active form of the ACE inhibitor are in a ratio of 100:1 to 3:1.

20. The method according to claim 19 wherein said ratio is 70:1 to 10:1.

21. The method according to claim 18 wherein said carrier comprises a pressure-sensitive adhesive.

22. The method according to claim 21 wherein said pressure-sensitive adhesive is a polymer or a mixture of a plurality of polymers.

23. The method according to claim 18 wherein said carrier is a flexible, finite polymer that comprises at least one of an acrylic-based polymer and a silicon-based polymer.

24. The method according to claim 18 wherein said dermal composition further comprises an enhancer.

25. The method according to claim 24 wherein said enhancer comprises dipropylene glycol and oleyl alcohol.

26. A dermal composition comprising a lipophilic prodrug in an amount corresponding to a therapeutically effective amount of a pharmaceutically active form of an ACE inhibitor admixture with a pharmaceutically acceptable carrier, wherein the lipophilic prodrug is of the pharmaceutically active form of an ACE inhibitor selected from the group consisting of benazepril, lisinopril, perindopril, quinapril, ramipril, spirapril, temocapril, and trandolapril.

27. The dermal composition according to claim 26 wherein said carrier comprises a pressure-sensitive adhesive.

28. The dermal composition according to claim 27 wherein said pressure-sensitive adhesive is a polymer or mixture of a plurality of polymers.

29. The dermal composition according to claim 26 wherein said carrier is a flexible, finite polymer that comprises at least one of an acrylic-based polymer and a silicon-based polymer.

30. The dermal composition according to claim 26 wherein said composition further comprises an enhancer.

31. The dermal composition according to claim 26 wherein enhancer comprises dipropylene glycol and oleyl alcohol.

32. A method of making the dermal composition of claim 26, comprising forming a mixture of the drug and a pharmaceutically acceptable carrier.

33. A method of treating a human being or animal suffering from a condition for which an ACE (angiotensin-converting enzyme) inhibitor is indicated, said method comprising the steps of:

applying to the skin of a human being or animal , the dermal composition of claim 26; and

maintaining said dermal composition in contact with said skin for a time sufficient to administer a therapeutically effective amount of enalaprilat.

34. The method of claim 33 wherein said condition is one selected from the group consisting of hypertension, heart failure, myocardial

infarction, and nephropathy.

35. A method of transdermally administering a therapeutically effective amount of a pharmaceutically effective form of enalapril through the skin of a patient, said method comprising the steps of:

- a) applying to the skin of said patient a dermal composition comprising enalapril ethyl ester in an amount corresponding to a therapeutically effective amount of a pharmaceutically active form of enalapril in admixture with a pharmaceutically acceptable carrier; and
- b) maintaining said dermal composition in contact with said skin for a time sufficient to deliver a therapeutically effective amount of a pharmaceutically active form of enalapril,

said method characterized in that the flux of enalapril ethyl ester is greater than that of enalapril maleate.